

Prescription drug use and medicine taking behaviour in pregnancy

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Abstract

Frequently in clinical practice, treatment regimens do not bring the expected results. In some of these cases, the underlying reason is non-adherence, which affects up to 50% of patients. It is well known that non-adherence can pose serious health risk; in pregnancy this risk extends not only to the mother but also to the fetus. However, little is known about the medicine-taking behaviour of pregnant women and thus little can be done to target at-risk groups. Clinical practice should be tailored to encourage adherence and optimize the efficacy of treatment plans, so as to effectively manage patients.

Keywords adherence; compliance; concordance; non-adherence pregnancy; puerperium

Introduction

Epidemiological studies report that up to 99% of women are prescribed at least one drug during pregnancy, yet little is known about their medicine-taking behaviour. Furthermore, there is little consensus over the correct terminology regarding the taking of medicines nor is there a gold standard measuring behaviour. A lack of evidence to show that medicines are taken correctly highlights a critical flaw in prescribing and performance-monitoring. This questions the necessity and efficacy of many treatment regimens. Lack of such research is especially highlighted in obstetrics, where the misuse of medicines could adversely affect both mothers and babies.

Terminology

Compliance, adherence and concordance have distinct definitions (Table 1), although the terms are commonly used interchangeably when describing medical intervention within a clinician–patient relationship.

Presently, in an information and technology-driven society, many patients have preconceived notions about their conditions

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and appropriate treatment plans. However, research has shown that the majority of patients would prefer not to be involved in decision making; 75% prefer their doctor to make important medical decisions. Of course, they have to be involved in the diagnostic process, but rather than making the prognosis and management plan themselves, instead, their ideas may contribute to their attitude towards taking the prescribed medication. Therefore, clinicians need to understand patients' views in order to increase their confidence in the outcome of the consultation and improve their likelihood of following it, making 'adherence' the most suitable terminology.

Patient adherence

Each method (Table 2) has advantages and disadvantages and no one has been identified as a gold standard measure. Furthermore, there are no standardized quantifiers of adherence. Though adherence to less than 70–80% of prescribed medications is usually defined as poor, quantification differs across literature. This creates difficulty in comparing results; there is a lack of homogeneity and potentially large differences in reliability across studies.

Non-adherence:

- Is often undisclosed by patients and unrecognized by clinicians.
- Can lead to fatal patient outcomes, e.g. it is a major cause of drug resistance in antibiotic and antiviral therapy, increasing patients' morbidity and mortality risks.
- Increases economic burden on the NHS, e.g. it requires an increased number of medicines to be used for treatment, the need to escalate treatment to more expensive interventions and causes increased hospitalization.
- A reported £5 billion was spent on 'wasted medicines' in 2005 and studies suggest this is because 30–50% of medications were not taken as recommended for various reasons (Table 3).

Non-adherence during pregnancy

Evidence regarding adherence rates to pharmacotherapy during pregnancy and the puerperium is scarce with large variation; reported adherence rates range from 15% (folic acid supplements) to 98% (thromboprophylaxis in high risk settings). Without measuring the relationship of prescription to adherence, performance monitoring could be distorted by non-adherence, and could give a false impression of national guidelines being effective, when in fact a large percentage of prescribed medications are wasted. The 'costs' are both personal (to patient health) and financial (to the taxpayer), especially when considering targets for the assessment and prescription of high volume and high cost medication (e.g. venous thromboprophylaxis) rather than outcome measures (rates of observed:expected thromboembolism).

Studies show that pregnancy itself is an important factor in adherence. Most studies agree that when non-adherence occurs the prominent reason is the woman's fear over the health of her fetus and how the medication may cause harm, even at the expense of her own health. Women also appear more concerned and capable of taking medication antenatally for the benefit of their babies, as they face more challenges in remembering to take medication for their own benefit when caring for a newborn.

Definitions of compliance, adherence and concordance

Terminology	Definition
Compliance	Extent to which patient's behaviour matches prescriber recommendation. 'Compliance' implies lack of patient involvement in the prescription process but responsibility to follow the treatment regimen. 'Low compliance' assumes patient blame if prescriptions are not taken as advised.
Adherence	Extent to which patient's behaviour matches agreed prescriber recommendations. Patients are involved in prescribing and choose whether to follow clinician recommendations. Both patients and clinicians are responsible for medicine-taking.
Concordance	Wider concept concerning the nature of patient-clinician interaction. Both parties may have different views of the risks and benefits of treatment but agree upon a diagnosis and method of treatment during the consultation, which can then be complied with or adhered to. Concordance is an interaction leading to action which, in itself, does not concern the medicine-taking process. Non-concordance is an outcome of failure in patient-clinician relationships.

Table 1

Table 4 summarizes key messages that should be highlighted on how pregnancy can affect adherence from a few of the available studies:

Many available studies appear to absolve clinicians of responsibility, inadvertently promoting the culture of 'patient culpability'. This stance should be reconsidered as adherence involves patient and clinician cohesion. McClintock et al. (2009) report a pertinent finding about the management of pregnant women with prosthetic heart valves; 'one of the most high-risk challenges that clinicians caring for pregnant women may face'. The population studied comprised of women who were on warfarin therapy, and thus it is reasonable to assume that they understood the benefits of anticoagulant therapy for themselves. They were then switched to enoxaparin for a period of time. The

Measuring adherence

Direct methods	Indirect methods
<ul style="list-style-type: none"> • Measurement of medicine, metabolite or biological marker in the blood or urine • Directly observed therapy 	<ul style="list-style-type: none"> • Patient questionnaires/diaries • Pill counts • Rate of prescription refills • Electronic medication monitors • Assessment of patient's clinical improvement

Table 2

Factors in patient non-adherence

Patient mediated	Clinician mediated
<ul style="list-style-type: none"> • Forgetfulness • Deciding to omit doses • Failure to understand the treatment plan • Smoking • Education status • Age below 20 years 	<ul style="list-style-type: none"> • Prescribing complex and/or hard to follow treatment regimens • Giving poor instructions • Not considering patients' lifestyle or medication costs.

Table 3

authors reported that 'non-compliance with enoxaparin and failure to achieve therapeutic target anti-Xa levels were the main contributing factors to the development of thromboembolic complications' rather than due to any adverse risks of the pharmacological agents themselves; this was noted in women who were in groups placed predominantly on enoxaparin therapy for a substantial period during their pregnancy. However, the authors also noted that the predominant concern for the women in this study was to avoid any harm to their child, even if they believed such action would place their own health at risk. Considering that thromboprophylaxis should be beneficial to both parties, particularly as enoxaparin is non-teratogenic, this suggests a miscommunication or lack of understanding of the

Pregnancy as a factor affecting adherence

Study author and title	Pregnancy factors affecting adherence
Laine et al. (2000) Adherence to antiretroviral therapy by pregnant women infected with human immunodeficiency virus: A pharmacy claims-based analysis.	Women who had been prescribed antiretroviral therapy before pregnancy showed better adherence than women who first took it during pregnancy possibly due to: <ul style="list-style-type: none"> • Greater experience with taking medications, • More advanced disease • Being more convinced of the benefits of therapy
Nielsen et al. 2010 Self-reported antenatal adherence to medical treatment among pregnant women with Crohn's disease	Women were more likely to be adherent to medical treatment if they had been pregnant before whilst knowing that they had Crohn's compared with primiparous women, and if the pregnancy had been planned
Vaz et al. 2007 HIV-infected pregnant women have greater adherence with antiretroviral drugs than non-pregnant women	Up to 23% more women adhere to antiretroviral therapy during pregnancy compared to the puerperium.

Table 4

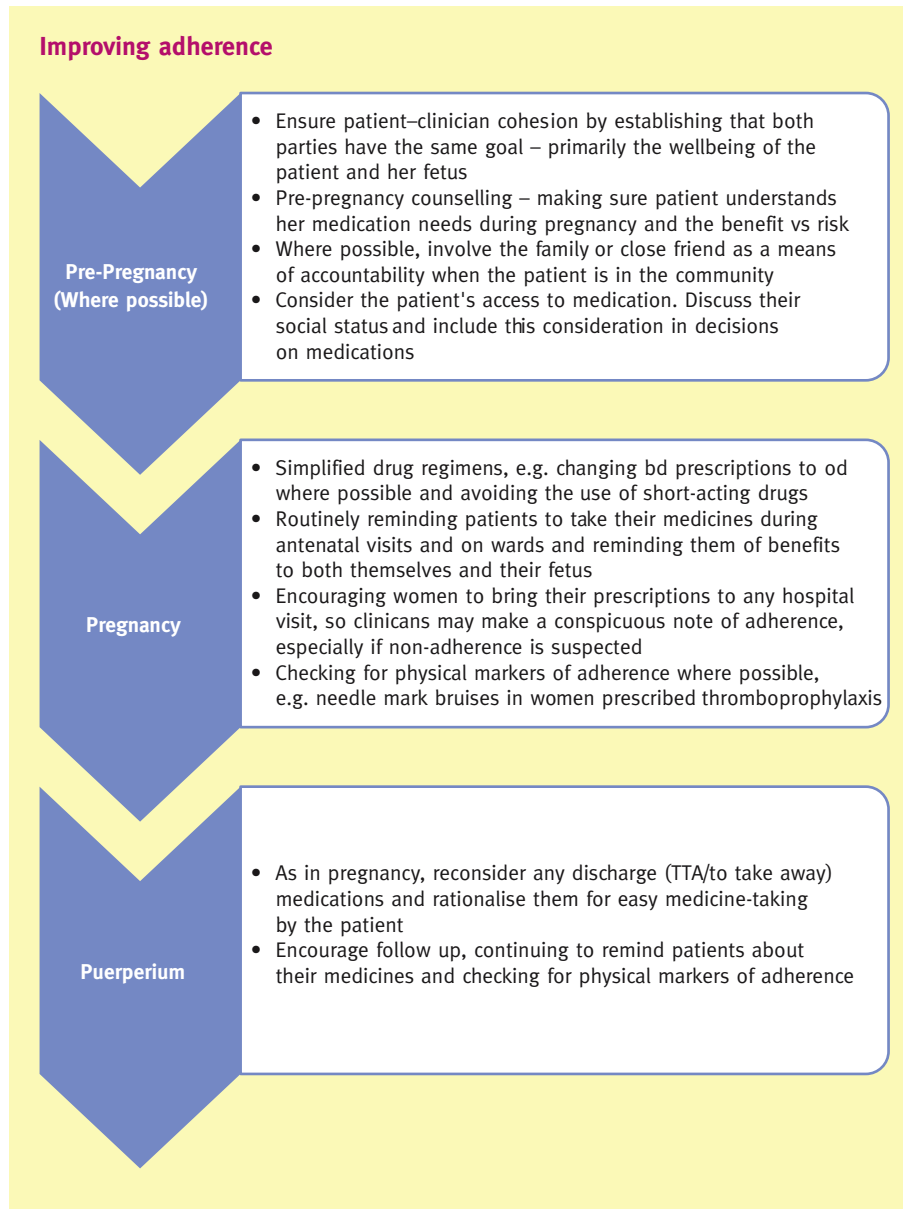


Figure 1

risks of enoxaparin therapy during pregnancy. Sadly, non-adherence in these cases led to transient ischaemic attack, cerebral-venous accident as well as stillbirth as a result of fetal intracranial haemorrhage. In these cases, surely mothers should not be blamed for the non-adherence, rather than clinicians who should tailor consultation and information services to ensure patients understand treatment regimens and the reasoning behind them?

Steps to improving adherence

See Figure 1.

Conclusion

Adherence in pregnancy has been poorly studied to date, but without understanding the relation of prescription to adherence, current performance-monitoring and risk assessments cannot be

fully justified. Standardized measures and definitions must be created to quantify adherence and non-adherence, so that it can be accurately targeted for improvement. Furthermore, we must not promote a ‘blame’ culture of ‘patient culpability’. Instead, studies on adherence need to be conducted in order to shape new clinical practices and ensure best quality care is provided to women in need. ◆

FURTHER READING

- 1 DiMatteo M. Variations in patients' adherence to medical recommendations: a quantitative review of 50 years of research. *Med Care* 2004; **42**: 200–9.
- 2 Osterberg L, Blaschke T. Adherence to medication. *N Engl J Med* 2005; **353**: 487–97.
- 3 Oladejo M, Bewley S. Adherence in Pregnancy: a systematic review of the literature. *Fetal Matern Med Rev* 2012; **23**: 201–29.

Practice Points

Adherence

- At least 30–50% of prescribed medications are not taken as recommended which is very costly
- Adherence rates in pregnancy vary from 15 to 98%
- Post-partum women and young women and those are less likely to be adherent
- Multiparity during a chronic condition is related to increased adherence
- Planned pregnancies increase adherence

Pregnant women are worried about:

- Themselves
- Harm to the fetus
- Remembering medication with a newborn

Doctors can promote adherence by:

- Facilitating trusting relationships
- Patient education and information with increased accessibility
- Tailored consultation to educational level to ensure understanding
- Eliciting patient's attitude to confidence in diagnosis and medication
- Non-judgemental clinician attitude to medication lapses
- Routinely checking patients for indicators of adherence, e.g. needle marks/bruises in those prescribed heparin

Doctors can promote non-adherence by:

- Prescribing complex treatment plans
- Not considering the challenge of a newborn in medication-taking
- Not checking that a patient has understood the benefit and risks of medication not only to themselves but also to their fetus